

Exact and Superlative Welfare Change Indicators

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Abstract

The traditional economic approach to index number theory is based on a ratio concept. The Konüs true cost of living index is a ratio of cost functions evaluated at the same utility level but with the prices of the current period in the cost function that appears in the numerator and the prices of the base period in the denominator cost function. The Allen quantity index is also a ratio of cost functions where the utility levels vary but the price vector is held constant in the numerator and denominator. There is a corresponding theory for differences of cost functions that was initiated by Hicks and the present paper develops this approach. Diewert defined superlative price and quantity indexes as observable indexes which were exact for a ratio of unit cost functions or for a ratio of linearly homogeneous utility functions. The present paper looks for counterparts to his results in the difference context, for both flexible homothetic and flexible nonhomothetic preferences. The Bennet indicators of price and quantity change turn out to be superlative for the nonhomothetic case. The underlying preferences are of the translation homothetic form discussed by Balk, Chambers, Dickenson, Färe and Grosskopf.

Key Words

Price and quantity aggregates, index number theory, equivalent and compensating variations, exact and superlative indexes, flexible functional forms, indicator functions, cost functions, money metric utility functions, duality theory, Bennet indicators, Konüs true cost of living index, Allen quantity index, welfare economics, decompositions of price and quantity change, translation homothetic preferences.

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